

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. APPLN. NO. 10/622,428
ATTORNEY DOCKET NO. Q76507

REMARKS

Applicant thanks the Patent Office for acknowledging Applicant's claim to foreign priority, and for indicating that the certified copy of the priority document, French Patent Application No. 0209438 dated July 25, 2002, has been made of record in the file.

Applicant thanks the Patent Office for initialing the references listed on the PTO/SB/08 A & B form submitted with the Information Disclosure Statement filed on December 12, 2003, thereby confirming that the listed references have been considered.

The Patent Office objects to the Abstract of the Disclosure as containing legal phraseology. Applicant herein amends the Abstract of the Disclosure to remove the objected-to language. Applicant submits that the Patent Office's objection to the Abstract has been overcome, and respectfully requests withdrawal of same.

The Patent Office objects to the Specification as containing informalities. Applicant submits a Substitute Specification with this Amendment. Applicant submits that the Patent Office's objection to the Specification has been overcome, and respectfully requests withdrawal of same.

Claims 1-7 have been examined on their merits.

Applicant herein editorially amends claims 3, 4, 5 and 7. The amendments to claims 3, 4, 5 and 7 do not narrow the literal scope of claims 3, 4, 5 and 7, were not made for reasons of patentability and thus do not implicate an estoppel in the application of the doctrine of equivalents.

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. APPLN. NO. 10/622,428
ATTORNEY DOCKET NO. Q76507

AMENDMENTS TO THE DRAWINGS

Applicant amends the drawing to overcome the Patent Office's objection to the drawings under 37 C.F.R. § 1.83(a). Specifically, Applicant adds new Figure 2, which depicts the multiple independent power converters of claim 7. The Specification has been amended accordingly, and no new matter has been added. Applicant requests that the objection to the drawings be withdrawn.

Attachment: One (1) Marked-up Drawing Sheet

Two (2) Replacement Sheets

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. APPLN. NO. 10/622,428
ATTORNEY DOCKET NO. Q76507

Applicant herein adds new claims 8-20. New claims 8-20 are supported by the originally filed specification, and do not add any new matter. Entry and consideration of the new claims 8-20 is respectfully requested.

The Patent Office objects to claims 3 and 6 as being dependent upon a rejected base claim. Applicant thanks the Patent Office for indicating that claims 3 and 6 would be allowed if rewritten in independent form. Applicant has rewritten claim 3 in independent form as new independent claim 8. However, instead of rewriting claim 6 in independent form, Applicant respectfully traverses the prior art rejections for the reasons set forth below.

Claims 1-20 are all the claims presently pending in the application.

1. Claim 6 stands rejected under 35 U.S.C. § 112 (2nd para.) as allegedly being indefinite due to lack of antecedent basis. Applicant herein amends claim 6 to correct its dependency. Applicant submits that the rejection of claim 6 has been overcome, and respectfully requests withdrawal of same.

2. Claims 1 and 5 stand rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by WO 00/37308. Applicant traverses the rejection of claims 1 and 5, and insofar as the Patent Office might apply the rejection to new claims 14 and 18, for at least the reasons discussed below.

To support a conclusion that a claimed invention lacks novelty under 35 U.S.C. § 102, a single source must teach all of the elements of a claim. *Hybritech Inc. v. Monoclonal Antibodies*,

Inc., 802 F.2d 1367, 1379 (Fed. Cir. 1986). A claim is anticipated only if each and every element as set forth in the claim is found either expressly or inherently in a single prior art reference. *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631 (Fed. Cir. 1987). A single source must disclose all of the claimed elements arranged as in the claim. *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236 (Fed. Cir. 1989). Rejections under 35 U.S.C. § 102 are proper only when the claimed subject matter is identically disclosed or described in the prior art. Thus, the cited reference must clearly and unequivocally disclose every element and limitation of the claimed invention.

WO 00/37308 fails to teach or suggest at least a ship's steering apparatus that comprises an asynchronous motor to hold a rudder in a given position, as recited in claim 1. WO 00/37308 discloses, *inter alia*, the use of a synchronous motor, which is a type of motor that converts alternating-current electric power into mechanical power using field magnets excited with direct current, and is used for constant-speed applications. As noted in the instant specification, to lock a synchronous motor in place requires the injection of direct current into the rotor/stator windings. WO 00/37308 also discloses, *inter alia*, the use of a switched reluctance motor, which is a type of synchronous motor that starts as an induction motor but runs at synchronous speed. WO 00/37308 further notes that an electromagnetic brake is required for holding a switched reluctance motor in place. See pg. 11, line 31 to pg. 32, line 2. However, WO 00/37308 does not teach or suggest the use of an asynchronous motor to control a rudder, which provides the advantage of being able to position the rudder by controlling a power supply to adjust the rotor slip frequency and avoid having to use electrical and/mechanical means to maintain the rudder

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. APPLN. NO. 10/622,428
ATTORNEY DOCKET NO. Q76507

position. Furthermore, the Patent Office has acknowledged that WO 00/37308 does not teach or suggest an asynchronous motor.

Based on the foregoing reasons, Applicant submits that WO 00/37308 fails to teach or suggest all of the claimed elements as arranged in claim 1. Therefore, under *Hybritech* and *Richardson*, WO 00/37308 clearly cannot anticipate the present invention as recited in independent claim 1. Thus, Applicant submits that claim 1 is allowable, and further submits that claim 5 is allowable as well, at least by virtue of its dependency from claim 1. Applicant respectfully requests that the Patent Office withdraw the § 102(b) rejection of claims 1 and 5.

With respect to new independent claim 14, Applicant submits that claim 14 is allowable for at least the same reasons discussed above with respect to claim 1, in that WO 00/37308 fails to teach or suggest the use of an asynchronous motor to control a rudder. Therefore, under *Hybritech* and *Richardson*, Applicant submits that claim 14 is allowable over WO 00/37308.

3. Claim 2 stands rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over WO 00/37308 in view of Lehle (U.S. Patent No. 4,908,564). Applicant traverses the rejection of claim 2, and insofar as the rejection might apply to new claim 15, for at least the reasons discussed below.

The initial burden of establishing that a claimed invention is *prima facie* obvious rests on the USPTO. *In re Piasecki*, 745 F.2d 1468, 1472 (Fed. Cir. 1984). To make its *prima facie* case of obviousness, the USPTO must satisfy three requirements:

a) The prior art relied upon, coupled with the knowledge generally available in the art at

the time of the invention, must contain some suggestion or incentive that would have motivated the artisan to modify a reference or to combine references. *In re Fine*, 837 F.2d 1071, 1074 (Fed. Cir. 1988).

- b) The proposed modification of the prior art must have had a reasonable expectation of success, and that determined from the vantage point of the artisan at the time the invention was made. *Amgen, Inc. v. Chugai Pharm. Co.*, 927 F.2d 1200, 1209 (Fed. Cir. 1991).
- c) The prior art reference or combination of references must teach or suggest all the limitations of the claims. *In re Vaeck*, 20 U.S.P.Q.2d 1438, 1442 (Fed. Cir. 1991); *In re Wilson*, 424 F.2d 1382, 1385 (CCPA 1970).

The motivation, suggestion or teaching may come explicitly from statements in the prior art, the knowledge of one of ordinary skill in the art, or, the nature of a problem to be solved. *In re Dembiczak*, 175 F.3d 994, 999 (Fed. Cir. 1999). Alternatively, the motivation may be implicit from the prior art as a whole, rather than expressly stated. *Id.* Regardless if the USPTO relies on an express or an implicit showing of motivation, the USPTO is obligated to provide particular findings related to its conclusion, and those findings must be clear and particular. *Id.* A broad conclusionary statement, standing alone without support, is not “evidence.” *Id.*; *see also, In re Zurko*, 258 F.3d 1379, 1386 (Fed. Cir. 2001).

In addition, a rejection cannot be predicated on the mere identification of individual components of claimed limitations. *In re Kotzab*, 217 F.3d 1365, 1371 (Fed. Cir. 2000). Rather, particular findings must be made as to the reason the skilled artisan, with no knowledge of the

claimed invention, would have selected these components for combination in the manner claimed. *Id.*

The combination of WO 00/37308 and Lehle does not teach or suggest at least a ship's steering apparatus that uses an asynchronous motor to hold a rudder in position by adjusting a slip frequency of the rotor, as recited in claim 1 and included in claim 2 by virtue of its dependency. The Patent Office has acknowledged that WO 00/37308 fails to teach or suggest an asynchronous motor, and therefore the Patent Office must rely on Lehle for the alleged disclosure of an asynchronous motor. While Lehle does disclose an asynchronous motor, the import of Lehle is a digital speed control that imparts synchronous motor behavior into an asynchronous motor. *See, e.g.*, col. 1, lines 7-9, 47-49 of Lehle. There is no teaching or suggestion in the combination of WO 00/37308 and Lehle of holding a rudder in position (*i.e.*, a stationary position with respect to a hull) by controlling the asynchronous motor power supply to adjust a slip frequency of the asynchronous motor's rotor. In fact, Lehle is directed to imparting an asynchronous motor with precise speed control, not to using an asynchronous motor to hold a member, *i.e.*, a rudder, in a particular angular position. Thus, Applicant submits that the Patent Office cannot fulfill the "all limitations" prong of a *prima facie* case of obviousness, as required by *In re Vaeck*.

Applicant submits that one of skill in the art would not be motivated to combine the two references. *In re Dembiczak* and *In re Zurko* require the Patent Office to provide particularized facts on the record as to why one of skill would be motivated to combine the two references. Without a motivation to combine, a rejection based on a *prima facie* case of obviousness is

improper. *In re Rouffet*, 149 F.3d 1350, 1357 (Fed. Cir. 1998)). The level of skill in the art cannot be relied upon to provide the suggestion to combine references. *Al-Site Corp. v. VSI Int'l Inc.*, 174 F.3d 1308 (Fed. Cir. 1999). The Patent Office must make specific factual findings with respect to the motivation to combine references. *In re Lee*, 277 F.3d 1338, 1342-44 (Fed. Cir. 2002). Although the Patent Office provides a motivation analysis with respect to return-to-zero formats, both WO 00/37308 and Lehle lack any teaching about the desirability of a ship's steering apparatus that uses an asynchronous motor to hold a rudder in position by adjusting a slip frequency of the rotor. Applicants submit that the Patent Office cannot fulfill the motivation prong of a *prima facie* case of obviousness, as required by *In re Dembiczak* and *In re Zurko*.

Whether a motivation to combine prior art references has been demonstrated is a question of fact. *Winner Int'l Royalty Corp. v. Wang*, 202 F.3d 1340, 1348 (Fed. Cir. 2000). In making such determination, the law requires some teaching, suggestion or reason coming from the prior art itself; otherwise, the conclusion to be reached is that the motivation is predicated on hindsight. *Gambro Lundia AB v. Baxter Healthcare Corp.*, 110 F.3d 1573, 1579, (Fed. Cir. 1997). There must be some showing of the obviousness of the claim as a whole, not the discrete parts, to establish *prima facie* obviousness. When the art in question, as is the case here, is relatively simple, the opportunity to judge by hindsight is particularly tempting. Consequently, the tests of whether to combine references need to be applied rigorously. *In re Dembiczak*, 175 F.3d 994, 999 (Fed. Cir. 1999), *limited on other grounds by In re Gartside*, 203 F.3d 1305 (2000). The same principle applies here because the Patent Office's analysis is backward to achieve the end point already defined - the instant claims. *Prima facie* obviousness is a legal

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. APPLN. NO. 10/622,428
ATTORNEY DOCKET NO. Q76507

requirement and the burden is on the Patent Office to demonstrate using only objective evidence or suggestion from the applied prior art, that one of ordinary skill would have been lead to the claimed invention as a whole without recourse to Applicant's disclosure. *In re Oetiker*, 977 F.2d 1443, 1447-48 (Fed. Cir. 1992); *In re Fine* 837 F.2d 1071, 1074-75 (Fed. Cir. 1988). As a matter of law then, it is the burden of the Patent Office to demonstrate that the prior art, and not Applicant's disclosure, would lead the hypothetical artisan to the claimed invention as a whole. What the Patent Office has done, and as plainly apparent in the statement of rejection, is to dissect the claim into discrete components and then to apply individual pieces of prior art. That is the hallmark of hindsight and not the characteristic of obviousness.

The Patent Office's analysis is nothing more than a classic hindsight reconstruction where the claimed invention is debased and trivialized because in retrospect, the Patent Office can find the dispirit elements, uniquely combined, existing in individual basis in a number of prior art references. Such a hindsight construction has been universally condemned. The Federal Circuit has been unwavering in its condemnation of hindsight logic. In *Grain Processing Corp. v. American Maize-Products Co.*, 840 F.2d 902, 907(Fed. Cir. 1988), Judge Mayer for the Federal Circuit stated:

Care must be taken to avoid hindsight reconstruction using the patent in suit as a guide through the maze of prior art references combining the right references in the right way so as to achieve the result of the claims in suit.

More recently, Judge Clevenger speaking for the Court on the same issue in *McGinley v. Franklin Sports, Inc.*, 60 U.S.P.Q.2d 1001, 1008 (Fed. Cir. 2001) stated:

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. APPLN. NO. 10/622,428
ATTORNEY DOCKET NO. Q76507

The genius of invention is often a combination of known elements which in hindsight seems preordained. To prevent hindsight invalidation of patent claims, the law requires some “teaching, suggestion, or reason” to combine cited references.

Same here, there is no rhyme or reason why the references cited and applied by the Patent Office would stand out from the maze of prior art. Those references stand for individual consideration, but also for the myopic dissection, one perspective view at a time, which is the result of the Patent Office’s logic and analysis. The approach fails to heed the injunction for “guarding against falling victim to the insidious effect of a hindsight syndrome wherein that which only the inventor taught is used against its teacher. *Id.* at 1008. Here the Patent Office’s methodology is nothing more than what has been rejected as the clear application of hindsight thus mandating reversal of the rejection. Thus, Applicant submits that the Patent Office cannot fulfill the motivation prong of a *prima facie* case of obviousness, as required by *In re Dembiczak* and *In re Zurko*.

With respect to new 15, Applicant submits that claim 15 is allowable for at least the same reasons discussed above with respect to claim 1, in that WO 00/37308 fails to teach or suggest the use of an asynchronous motor to control a rudder. Therefore, under *Hybritech* and *Richardson*, Applicant submits that claim 15 is allowable over WO 00/37308.

4. Claim 7 stands rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over WO 00/37308 in view of Lehle and in further view of Eaves *et al.* (U.S. Patent No. 6,320,731). Applicant traverses the rejection of claim 7, and insofar as the Patent Office might apply the rejection to new claim 20, for at least the reasons discussed below.

Claim 7 depends upon claim 2. As discussed above with respect to claim 2, the combination of WO 00/37308 and Lehle does not teach or suggest all the recitations of the invention recited in claim 2. Combining Eaves *et al.* with WO 00/37308 and Lehle does not provide any further disclosure that would overcome the deficiencies of the combination of WO 00/37308 and Lehle, in that the combination of WO/00 37308, Lehle and Eaves *et al.* does not teach or suggest at least a ship's steering apparatus that uses an asynchronous motor to hold a rudder in position by adjusting a slip frequency of the rotor, as recited in claim 1 and included by virtue of dependency in claim 7. As discussed above with respect to claim 2, the Patent Office has not made out a *prima facie* case of obviousness with respect to the "all limitations" and motivation prongs. Although Eaves *et al.* discloses multiple windings, there is no discussion of each winding being connected to a power converter that is controlled to adjust a slip frequency of a rotor. Thus, Applicant submits that claim 7 is patentable at least by virtue of its dependency from claim 2, and respectfully requests that § 103(a) rejection of claim 7 be withdrawn.

With respect to new claim 20, Applicant submits that claim 20 is allowable for at least the same reasons discussed above with respect to claim 7, in that the combination of WO/00 37308, Lehle and Eaves *et al.* fails to teach or suggest the use of an asynchronous motor to

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. APPLN. NO. 10/622,428
ATTORNEY DOCKET NO. Q76507

control a rudder by adjusting the rotor slip frequency. Therefore, Applicant submits that claim 20 is allowable over the combination of WO/00 37308, Lehle and Eaves *et al.*

5. Claim 4 stands rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over WO 00/37308 in view of Pleuger *et al.* (U.S. Patent No. 2,714,866). Applicant traverses the rejection of claim 4, and insofar as the Patent Office might apply the rejection to new claim 17, for at least the reasons discussed below.

Claim 4 depends upon claim 1. As discussed above with respect to claim 1, WO 00/37308 does not teach or suggest all the recitations of the invention recited in claim 1. Combining WO 00/37308 and Pleuger *et al.* does not provide any further disclosure that would overcome the deficiencies of WO 00/37308 with respect to an asynchronous motor to hold a rudder in position by adjusting a slip frequency of the rotor, as recited in claim 1 and included by virtue of dependency in claim 4. Thus, Applicant submits that claim 4 is patentable at least by virtue of its dependency from claim 1, and respectfully requests that § 103(a) rejection of claim 4 be withdrawn.

With respect to new claim 17, Applicant submits that claim 17 is allowable for at least the same reasons discussed above with respect to claim 4, in that the combination of WO 00/37308 and Pleuger *et al.* fails to teach or suggest the use of an asynchronous motor to control a rudder by adjusting the rotor slip frequency. Therefore, Applicant submits that claim 17 is allowable over the combination of WO/00 37308 and Pleuger *et al.*

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. APPLN. NO. 10/622,428
ATTORNEY DOCKET NO. Q76507

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

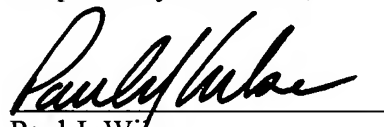
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WASHINGTON OFFICE

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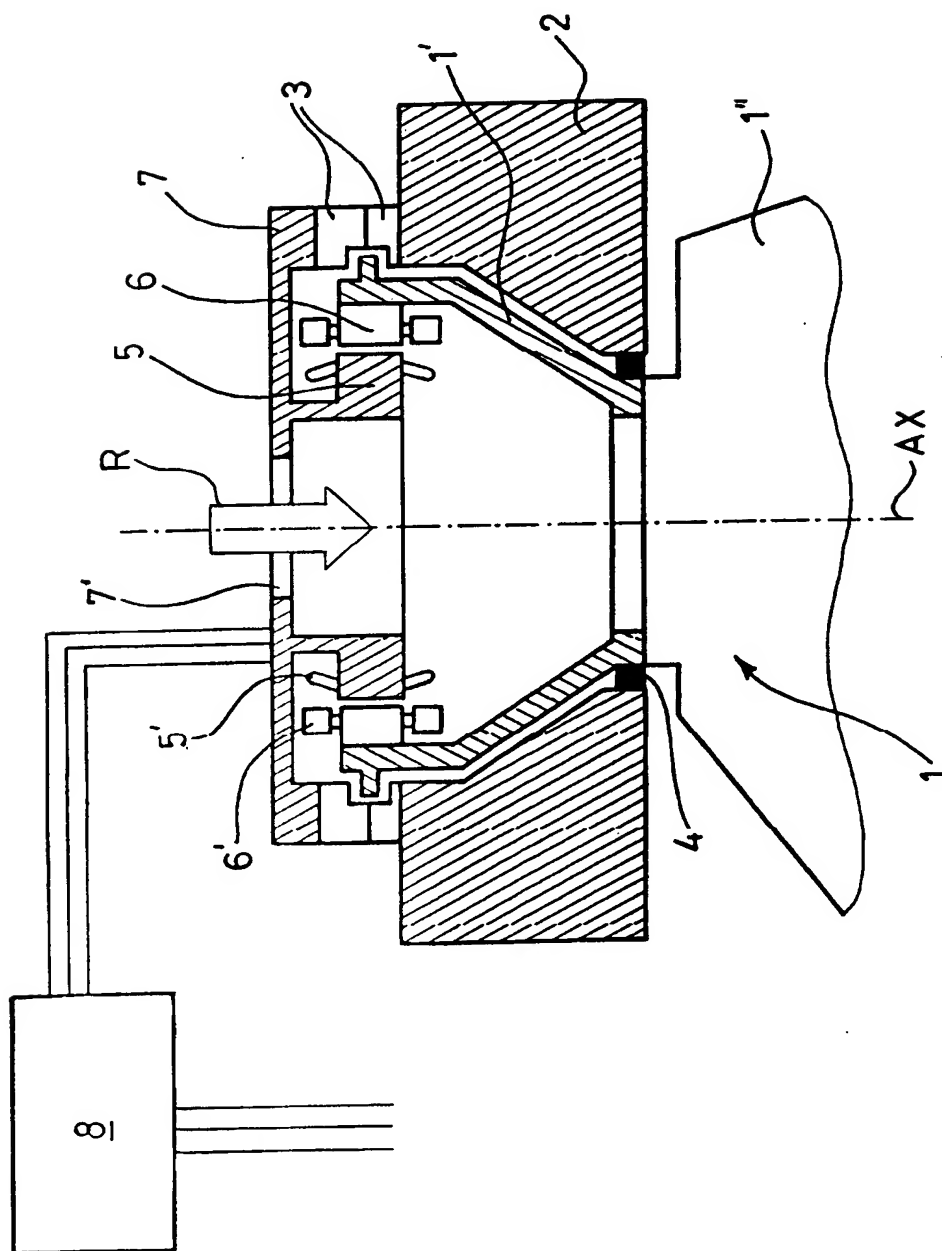


FIG. 1